

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

4-13. (Cancelled)

14. (Currently Amended) ~~A position sensor as in claim 9, A~~
position sensor, comprising:

a moving coil part, having a first coil form that is
constructed of a non ferromagnetic material, and a coil element
having an electrical connection part, formed around said first
coil form, said moving coil part constrained to move in a linear
direction, and said moving coil part including a connection
element adapted for connection to a moving object of interest;

a stationary coil part, having a second coil form also
constructed of a non ferromagnetic material, and a second coil
element wound on said second coil form, with said second coil
element having at least first and second electrical connections
which produce an output signal indicative of a moving
relationship between said moving coil part and said stationary
coil part, said stationary coil part sufficiently close to said
moving coil part such that magnetic flux from said moving coil
part is induced into said stationary coil part, wherein said

first and second coil forms are formed of solid, non-ferromagnetic material,

further comprising signal processing electronics, connected to said first and second electrical connections of said stationary coil part, and receiving voltages from said first and second stationary coil part induced by movement of said moving coil part,

wherein said signal processing electronics including a differential amplifier which differentially amplifies signals from said first and second electrical connections of said stationary coil parts, respectively, and

further comprising a multiplier circuit, connected to an output of said differential amplifier, and a phase shift circuit, receiving said first waveform, and producing a phase shifted version of said first waveform coupled to another input of said multiplier circuit, said multiplier multiplying said signals to provide a synchronous signal proportional to a position of the moving primary coil.

15. (Previously Presented) A position sensor as in claim 14, wherein said phase shift circuit is coupled directly between said excitation electronics and said multiplier circuit.

16. (Previously Presented) A position sensor as in claim 14, wherein said phase shift circuit is provided between said excitation electronics and said moving coil part.

17. (Currently Amended) ~~A position sensor as in claim 9,~~ A position sensor, comprising:

a moving coil part, having a first coil form that is constructed of a non ferromagnetic material, and a coil element having an electrical connection part, formed around said first coil form, said moving coil part constrained to move in a linear direction, and said moving coil part including a connection element adapted for connection to a moving object of interest;

a stationary coil part, having a second coil form also constructed of a non ferromagnetic material, and a second coil element wound on said second coil form, with said second coil element having at least first and second electrical connections which produce an output signal indicative of a moving relationship between said moving coil part and said stationary coil part, said stationary coil part sufficiently close to said moving coil part such that magnetic flux from said moving coil part is induced into said stationary coil part, wherein said first and second coil forms are formed of solid, non-ferromagnetic material,

further comprising signal processing electronics, connected to said first and second electrical connections of said stationary coil part, and receiving voltages from said first and second stationary coil part induced by movement of said moving coil part,

wherein said signal processing electronics including a differential amplifier which differentially amplifies signals from said first and second electrical connections of said stationary coil parts, respectively, and

wherein said signal processing electronics includes a first amplifier which produces an first output indicative of an input, and a second amplifier which produces second output indicative of an inverted version of said input, and an analog switch, operable to switch between said first and second outputs of said first and second amplifiers.

18. (Previously Presented) A position sensor as in claim 17, further comprising a phase shifting element, phase shifting said first waveform to produce a control signal for said analog switch.

19-60. (Cancelled)